

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Subject	Technical Advisory Committee Meeting #6 Virginia Coastal Resilience Master Planning Framework	Date	October 7, 2021
Facilitator	Ann Jennings - Chair	Time	1:00 pm – 5:00 pm
Location	WebEx - https://governor.virginia.gov/fg49z Patrick Henry Building – East Reading Room 1111 E Broad St, Richmond, VA 23219	Scribe	Emily Sokol

Invitees/Attendees			
#	Name	Organization/Role	Attended?
Technical Advisory Committee Members - Appointed and Invited (Alternates in Parentheses)			
1.	Ann Jennings	Chair, Secretary of Natural and Historic Resources and Chief Resilience Officer	Y
2.	Rear Admiral Ann C. Phillips, USN(Retired)	Special Assistant to the Governor for Coastal Adaptation and Protection (STAFF to TAC)	Y
3.	Dr. Janice Underwood	Chief Diversity, Equity, and Inclusion Officer (Omer Yousuf)	
4.	Carlos Rivero	Chief Data Officer	
5.	Clyde Cristman	Director, Department of Conservation and Recreation	Y
6.	Curtis Brown	State Coordinator, Virginia Department of Emergency Management (Erin Sutton)	
7.	Erik Johnston	Director, Department of Housing and Community Development (Traci Munyan)	
8.	Stephanie L. Hamlett	Executive Director, Virginia Resources Authority (Tony Leone)	
9.	David K. Paylor	Director, Department of Environmental Quality	Y
10.	Catherine C. McGhee	Director, Research and Innovation, Virginia Transportation Research Council	Y
11.	Steve Bowman	Commissioner, Virginia Marine Resources Commission (Rachel Peabody)	
12.	Dr. Mark Luckenbach	Associate Dean for Research and Advisory Services, Virginia Institute of Marine Science at William & Mary	Y
13.	Elizabeth Andrews	Director, Virginia Coastal Policy Center at William & Mary Law School	
14.	Dr. Robert Weiss	Director, Center for Coastal Studies at Virginia Tech	Y
15.	Dr. Karen McGlathery	Director, Environmental Resilience Institute at the University of Virginia, Norfolk District	Y
16.	Col. Brian Hallberg	Commander, United States Army Corps of Engineers (Tom Emerick) (V)	
17.	Dr. Troy Hartley	Director, Virginia Sea Grant	Y
18.	Robert A. Crum, Jr.	Executive Director, Hampton Roads Planning District Commission (Whitney Katchmark)	Y
19.	Martha Heeter	Executive Director, Plan RVA (Richmond Regional Planning District Commission) (Sarah Stewart) (V)	
20.	Robert W. Lazaro	Executive Director, Northern Virginia Regional Commission (Norm Goulet)	
21.	Jerry W. Davis	Executive Director, Northern Neck Planning District Commission (John Bateman)	
22.	Elaine Meil	Executive Director, Accomack-Northampton Planning District Commission	
23.	Lewis L. Lawrence, III	Executive Director, Middle Peninsula Planning District Commission	Y
24.	Alec Brebner	Executive Director, Crater Planning District Commission (Jay Ruffa)	Y (V)
25.	Kate Gibson	Acting Director GWRC (Michael Zehner)	

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

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#	Name	Organization/Role	Attended?
26.	Carol Considine	Program Head, Flooding and the Built Environment, Institute for Coastal Adaptation and Resilience at Old Dominion University	Y (V)
27.	Dr. Robert S. Young	Geology Professor, Program Director for the Study of Developed Shorelines, Western Carolina University	Y (V)
28.	Mary-Carson Stiff	Wetlands Watch Policy Director, Wetlands Watch	Y
29.	Ashley Montgomery	Associate Designers, Hanbury	Y (V)
30.	Dr. Carl Hershner	Emeritus Professor of Marine Science, Virginia Institute of Marine Science at William & Mary	Y
31.	Jill Bieri	Director of Virginia Coast Reserve, The Nature Conservancy	Y
32.	Kristin Owen	Floodplain & Dam Safety Manager at Henrico County, Henrico County	Y
33.	Dr. Jessica Whitehead	Director, Institute for Coastal Adaptation and Resilience at Old Dominion University	Y (V)
34.	Dr. Stephen Moret	President & CEO, Virginia Economic Development Partnership (Jason El Koubi)	
35.	Georgie Márquez	Principal, Andre Marquez Architects	Y
36.	Sara Dunnigan	Deputy Director, GO Virginia and Economic Development, Department of Housing and Community Development	Y (V)
37.	Eric Letsinger	CEO, Quantified Ventures	
38.	Capt. Samson Stevens	USCG Sector Commander Hampton Roads	
39.	Kathleen Jabs	Acting Secretary for Veterans and Defense Affairs (Tom Crabbs)	
40.	Rear Admiral Charles Rock	Commander Navy Region Mid Atlantic (Joe Howell)	
41.	Rear Admiral Craig Quigley (Retired)	US Navy, CEO, Hampton Roads Military and Federal Facilities Alliance	Y
42.	Mr. Reggie Tupponce	Tribal Administrator, The Upper Mattaponi Indian Tribe (Leigh Mitchell)	
43.	Capt. Tom Crabbs	USCG (Retired), Military Liaison, Office of the Secretary of Veterans and Defense Affairs	Y
44.	Chris Swanson	Resilience Director, VDOT Secretary of Transportation	Y
Scheduled Speakers			
45.	Brian Batten	Dewberry	Y
46.	Mathew Mampara	Dewberry	Y (V)
47.	Alaurah Moss	Dewberry	Y (V)
48.	Johanna Greenspan-Johnston	Dewberry	Y (V)
49.	Jerry Sparks	Dewberry	Y
Designated Alternates			
50.	Traci Munyan	Program Administrative Manager, Dept of Housing and Community Development	Y
51.	Kyle Flanders	Policy Planning Specialist, Dept. of Housing and Community Development	
52.	Lee Hutchinson	Resiliency Program Analyst, Dept of Housing and Community Development	Y (V)
53.	Shawn Crumlish	Director of Financial Services, Virginia Resources Authority	
54.	Peter D'Alama	Director of Program Management, Virginia Resources Authority	
55.	Tony Leone	Virginia Resources Authority	
56.	Erin Sutton	Chief Deputy, Virginia Department of Emergency Management	Y
57.	Robbie Coates	Grants Division Director, Virginia Department of Emergency Management	

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

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58.	Whitney Katchmark	Principal Water Resources Engineer, Hampton Roads PDC	Y
59.	Sarah Stewart	Planning Manager, Plan RVA (Richmond Regional PDC)	Y (V)
60.	Corey Miles	Coastal Resources Program Manager, Northern Virginia Regional Commission	
61.	Normand Goulet	Director, Division of Environmental and Resiliency Planning, Northern Virginia Regional Commission	Y
62.	Michael Zehner	George Washington Regional Commission	Y
63.	John Bateman	Regional Planner, Northern Neck Planning District Commission	
64.	Curtis Smith	Deputy Director, Middle Peninsula Planning District Commission	
65.	Jay Ruffa	Director of Planning & GIS, Crater Planning District Commission	Y (V)
66.	Randy Owen	Deputy Chief of Habitat, Virginia Marine Resources Commission	
67.	Richard Klein	Civil Works Program Manager, USACE, Norfolk District	Y (V)
68.	Keith Lockwood	Chief, Water Resources Division, USACE, Norfolk District	
69.	Tom Emerick	Chief Counsel, United States Army Corps of Engineers, Norfolk District	Y (V)
70.	William "Skip" Stiles Jr	Executive Director, Wetlands Watch	
71.	Scott Miller	Principal and planner, Hanbury	
72.	Jason El Koubi	Executive Vice President, The Virginia Economic Development Partnership	Y (V)
73.	Kevin DuBois	Commander Navy Region Mid Atlantic Chesapeake Bay Program	
74.	Joe Howell	Commander Navy Region Mid Atlantic Regional Community Plans & Liaison Officer	Y (V)
75.	Rachel Peabody	Virginia Marine Resources Commission	Y
76.	Sharon Baxter	DEQ	Y (V)
77.	Greg Grootendorst	Chief Economist, HRPDC	
78.	Jessica Steelman	Coastal Planner, ANPDC	
79.	Omer Yousof	Special Assistant to the Directory of Diversity, Equity, and Inclusion	Y
80.	Leigh Mitchell	The Upper Mattaponi Indian Tribe	Y
Committee Advisors			
81.	Emily Steinhilber	Director of Virginia Coastal Resilience, Environmental Defense Fund	Y
82.	Julie Langan	Director, Virginia Department of Historic Resources	
83.	Jessica Grannis	Coastal Resilience Director, Audubon	
84.	Megan Melinat	Director, Division of Preservation Incentives at Virginia Department of Historic Resources	
85.	Jolene Smith	Department of Historic Resources	Y
86.	Matt Lott	Emergency Manager, Virginia Department of Transportation	Y (V)
87.	Ivan Cruz	VDOT	Y (V)
88.	Laura Rogers	NASA	
89.	Patrick Taylor	NASA	
90.	Bruce Sturk	City of Hampton	
91.	Doug Beaver	City of Norfolk	Y (V)
92.	Capt. John Dewey	USCG	
93.	Capt. John Barresi	USCG	Y (V)
94.	CDR Jeremy Hall	USCG	
95.	Capt. Jennifer Stockwell	USCG	
96.	Scott Spencer	Office of Economic Adjustment, Department of Defense	Y (V)

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

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#	Name	Organization/Role	Attended?
Subcommittee Staff Advisors			
97.	Matt Jones	Virginia Management Fellow	Y
98.	Shep Moon	Coastal Planner, Virginia CZM Program/SRBP Subcommittee Advisor	Y
99.	Joshua Saks	Deputy Secretary of Natural Resources	Y
100.	Jefferson Flood	Virginia Coastal Zone Management Program	
101.	Katie Sallee	Confidential Assistant to the Secretary of Natural Resources	Y
102.	Meryem Karad	Assistant Secretary of Natural Resources	
103.	Laura McKay	Virginia Coastal Zone Management Program	Y
Other Participants			
104.	Connor Winstead	DCR	Y
105.	Matt Dalon	DCR	Y
106.	M. Moore	Community member, Chesapeake, VA	Y (V)
107.	Keith Cannady	Deputy Executive Director, Hampton Roads Planning District Commission	Y (V)
108.	Morgan Butler	SELC	Y (V)
109.	Brent Hunsinger	FOR	Y (V)
110.	Aja Moore		Y (V)
111.	Matt Simons	City of Norfolk	Y (V)
112.	Cindy DiFranco	DHCD	Y (V)
113.	Carolyn Heaps	City of Hampton	Y (V)
114.	Grace Tucker	EDF	Y
115.	Jay Ford	CBF	Y (V)
116.	Matt Donaldson	USACE	Y (V)
117.	Amy Wight	VDOT	Y (V)
118.	Noelle Slater	AECOM	Y (V)
119.	Madison Teeter	Wetlands Watch	Y (V)
120.	Pat Calvert	VCN	Y (V)
121.Y	Fernando Pasquel	Arcadis	Y (V)
122.	Rebekah Cazares		Y (V)
Consultant Support			
123.	Deepa Srinivasan	Vision Planning and Consulting	Y (V)
124.	Ashley Samonisky	Vision Planning and Consulting	Y (V)
125.	Emily Sokol	Vision Planning and Consulting	Y (V)

Agenda/Minutes		
#	Agenda Item	Minutes
1.	Introduction	Secretary Ann Jennings called the TAC Meeting to order, introduced herself, and provided a brief overview of today's meeting agenda. She asked for public attendees to submit questions to the chat box and advised Katie Sallee will be moderating the chat. Secretary Jennings read the required verbiage and asked Rear Admiral Ann Phillips to take roll. Rear Admiral Phillips called roll and advised that a quorum was present.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>Secretary Jennings asked everyone online to stay muted unless they were presenting. After presentations, committee members can be unmuted for discussion by raising their hands. Staff will assist with recognizing attendees who have questions or comments. Members of the public will be allowed to ask question through chat box only by those who signed up in advance. This will take place during the last 30 minutes of the meeting.</p> <p>If anyone has any questions or there are any interruptions in the meeting, please call 804-316-4478 or email katie.sallee@governor.virginia.gov.</p>
2.	TAC-Related Updates	<p>Rear Admiral Phillips thanked the Subcommittees for the time they dedicated and input they provided in their review of the 90% Master Plan document. She stated her gratitude for their support and warned that she would likely be reaching out again to ask for more feedback one final time, as Dewberry provides their edited document. Rear Admiral Phillips reported that the goal is to have a completed document by the end of October, so the document can be sent to the Office of the Governor for approval by early December. She expressed appreciation for their work to date and going forward as the team works to make the Master Plan a complete document.</p>
3.	Dewberry Team Presentation Web Application Preview/Discussion	<p>Rear Admiral Phillips: We have discussed how this work will be viewable by the public in the future and how it can be used by the PDCs and localities. While the web application is still a work in progress, we want to provide you with an update, so I will turn the floor over to the Dewberry team to demonstrate the work that has been completed thus far.</p> <p>Mathew Mampara presented a walk-through of the web application:</p> <p>As Admiral Phillips mentioned, the web application development is currently underway. There are a number of user experience and user interface enhancements that are on the near horizon. Today, we wanted to share some of the key functionality that the web application can provide and give a sense for the primary capabilities that the application will offer.</p> <p>Currently, we are looking at the coastal flood hazard exposure component, which provides a graduated representation of the coastal hazard area as a function of the four time horizons that the CRMP is evaluating (current day, 2040, 2060, 2080). The graduated hazard approach provides a responsive and detailed representation of that hazard. We can see how the hazard expands across those time horizons. As with most map applications, we can evaluate it with different base maps to understand what is below the hazard area. Here, I can cycle through the epochs and query the hazard dataset to tell us when that area becomes exposed to the hazard. This enables us to understand how that hazard is evolving in time. We have included the FEMA flood hazard data and that web service from FEMA. The idea was to not indicate that this application comprehensively presents all risk, so in including the FEMA web service, we present both the hazard data as developed for the CRMP and the current understanding of coastal and riverine flooding hazards recognized by FEMA. Those components can be turned on and off. The FEMA layer has its own set of controls and labeling, but it is there to provide context. The chart on the left shows the number of</p>

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>acres of inundated land over the different epochs. Each of the bar graphs provides a total at the top, but also the quantity of acres within each of these floodplain predictions/frequencies. You can also look at this from a PDC level view. The charts are updated to reflect the area of interest. The future user interface enhancements will include additional tool tips and language around these components that will support the user being able to self-navigate the web-application components and extract information relevant to their needs.</p> <p>We are now moving to the page that reflects impacts on community resources. As we have defined impacts, we are defining those as effects on physical, social, and economic environment. We have presented those impacts in three broad themes: impacts on community resources, critical sectors, and natural infrastructure. There are a discreet set of impacts presented in community resources. The charts here reflect the impact type and allocate the population exposure by slice and by epoch. Each of those will update as the area of interest is selected. It is important to note that with each of these impacts, we are using a summarization approach to characterize the impact in terms of quantity (number of people exposed) as well as severity (the nature of the event, the frequency of the hazard). The end result is this summarization grid, which will evolve across the time horizons to understand where those hotspots are for population exposure and exposure of residential structures, in this case. How does the hazard interact with that particular asset type? What we represent in this summary grid is being able to summarize those impacts in the landscape. We are looking at residential structure risk relative to Virginia with a 5-point scale from very low impact to very high impact, as well as how that changes in time. With each of these elements, they are presented relative to 2080 and relative to the area of interest. The user can also look at the impact on public and commercial structures. For the impacts on critical sectors, we included a variety of different sectors, including but not limited to health and emergency services, defense industry, gov facilities, road segments (VDOT), energy assets, and wastewater facilities. Graphs are updated to reflect the specific sector being looked at. We also have a page that demonstrates the impacts on natural infrastructure.</p> <p>The final piece is the social and demographic context, which provides a broad view of the key components to social vulnerability, as defined by the CDC. On the left, you can see the percentage breakdown for all counties in the 8 coastal PDCS, which provides a social and demographic context within which to evaluate the hazard. As opposed to the other tabs, there is a “none” time horizon on this tab, as the information being used to calculate social vulnerability is from 2018 and is somewhat atemporal, though the data structure would make incorporating the Census data of 2019 and 2020 in the future not difficult. Then, a bivariate presentation of flood hazard exposure and social vulnerability at the different time horizons is used, demonstrating where those two elements come together and can be used to identify key characteristics of how the hazard will affect specific areas and populations. Over the time that the hazard is changing, the demographic information is not changing. We do not have population estimates for 2080, but as the hazard extends and expands, the current population impacted expands.</p> <p>Mr. Mampara then opened the floor to the TAC members for questions.</p>

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>Discussion Point- DR Mark Luckenbach In the layer that demonstrates the impacts to SAV, is that data based on increasing water depth? What are the causes of those impacts?</p> <ul style="list-style-type: none"> - Mr. Mampara: Yes, that is correct. I will also encourage Alaurah Moss to chime in regarding how those impacts were assessed and calculated. - Alaurah Moss: Yes, those impacts were based on increasing water depth. With increased sea level rise scenarios, we looked at how those depths were changing. - DR. Luckenbach: I would advise that you throw that out. Water depth is way down on the list of climate impacts to SAV. For some of the areas you are graphing, heat and increased rainfall are going to have a much larger impact on SAV. SAV is not the biggest threat that people will worry about, but water depth will not be impacting species as much as increased temperature and increased rainfall will. - Dr. Brian Batten: Alaurah, do you want to address how that methodology was developed? I am a little taken aback by that, since we worked with people at VIMS to determine how best to do this, but we are definitely open to all suggestions and will look to incorporate this feedback. - Norm Goulet: You can look to cross reference your data with the information that is coming in from Chesapeake Bay program. - Dr. Karen McGlathery: With SAV and marshes, impact includes accretion, which is important to SAV, sea level rise is not going to be a big impact on sea grasses. Increases in temperature are more important. We can address this upfront by being clear regarding the assumptions that were made going into this and what has not been included. This is reflecting a much bigger issue of what is and is not included in the analysis, which may be overemphasizing some aspects more than others. But overall, we just need to be clear about these assumptions and what has not been included. - Dr. Batten: That is our full intention. This is a high-level assessment that is being communicated to a variety of audiences, so we want to be as clear about the limitations as possible. - Rob Young (in chat): I am concerned about the usefulness of this analysis for all of the natural infrastructure. It is just so much more complicated than that. <p>Discussion Point- Whitney Katchmark: I know this is a big issue, but might you treat the 500-year scenario differently? The 500-year scenario is a very low probability event, but it conveys a huge impact. It needs to be clear that the probability of this type of event is very, very low. When summarizing between different time scenarios, maybe we could not use the 500-year scenario or define it differently.</p> <ul style="list-style-type: none"> - Dr. Batten: That was an effort to communicate the range of change. There is a question of what the right level of detail is, so that is good feedback - Mr. Young (in chat): The State of NC has had three 500 yr events in the last decade. I just don't think we can assume that the traditional "500 yr event" will be a rare event in the future. - Ms. Katchmark: When you are reviewing the hotspot layer, as a user, can you access the HIFELD data set itself? - Mr. Mampara: One aspect of what we are doing to address that is limiting where we are presenting aggregated metrics so that there are different assets

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>being presented under one subcomponent class. We know that HIFELD has limitations with respect to spatial fidelity- we have discussed that with TAC. This helps us get a screening and understanding of where some of those hot spots may be and then at a PDC level, our hope would be that there be intimate knowledge of the landscape that can help inform the review and evaluation. Bringing in HIFELD data writ large would be a substantial undertaking. We feel like it might dilute the key messages we are trying to communicate. The hope is, with being able to view aerial photography and assess what the area looks like, the user would be in a position to ascertain what is being referenced.</p> <ul style="list-style-type: none"> - Dr. Batten: This is the open public web application. The databases will be given to the State at the end. Part of the delivery will be some web services with the initial data set. We are still working with the data currently. There is more detail that could be available as web services. - Ms. Katchmark: That would be great. I do not know that the public cares to access the dataset, but as local staff, it would be helpful to understand why this area floods. <p>Discussion Point- Mary-Carson Stiff: Regarding the metric/gradation from very low to very high exposure displayed on the impact on community resources tab, is very low like 5 houses or less, etc. What exactly is the scale and how was it developed? Could that be shown on the left as well?</p> <ul style="list-style-type: none"> - Mr. Mampara: The scale changes depending on the geography of interest selected. As we think about it from the public user perspective, we have tried to use colloquial language in presenting those ranges/scales and present it in a way that would be most clear to the user. But that is good feedback. <p>Discussion Point- Dr. Jessica Whitehead: I would like clarification on the social and demographic context tab. When you zoom down to the locality, you begin to see shifts, in particular I had questions about how I should interpret what I am seeing.</p> <ul style="list-style-type: none"> - Mr. Mampara: Absolutely. Our focus thus far has been to get the functionality piece working- adding scaffolding language is something that is being worked on and will be included to inform the user. There may not currently be much there to support the general user, but there will be in the future. What we have done here is provide a set of atemporal social vulnerability components- the ingredients into social vulnerability. The other part is the combined coastal hazard and social vulnerability- as the hazard expands, the current population that is experiencing the hazard changes and new populations may be affected. There is some value in conveying this. The Commonwealth's vision here is that it sensitizes the viewer to this issue. - Dr. Whitehead: I do think that it may need to be clearer that, even though you are looking at the 2080 map, there is no estimated change in population being made. - Mr. Mampara: You are absolutely right. We have been wrestling with this and the language to describe this. - Dr. McGlathery: It is important that this information is included, up-front and easy to access so that the users know what they are looking at before they try to interpret the map.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Rear Admiral Phillips: You have seen a piece of this application today. It will also include the project database and financial database in the future. We do not know exactly how those will look as they are being assembled.
4.	Commonwealth Discussion – Project Evaluation Process / Capacity Building Needs and Master Plan Project Incorporation and Outcomes	<p>Rear Admiral Phillips provided a presentation about the current status of the project prioritization process: The Project Identification and Project Evaluation Subcommittees have had input on these processes over the past months. As task 5 of the framework, the overarching goal was to align the project evaluation criteria with the 5 guiding principles of the Master Plan and the priorities of the Commonwealth. This led to the project data call and the development of the project database. We are currently developing a protocol for how we want to move forward. A schema was created to identify and classify projects, and a screening process was developed to identify high-priority projects. No projects will be cut or removed from the database- we are only interested in adding projects, but the process does help identify the highest priority projects. 436 projects and about 80 capacity building efforts have been added to the database, and there has been movement between the two groups. A large percentage of the submitted projects are stormwater/non-coastal projects that are not currently being prioritized because we are focusing on the coastal hazard, , but they are not being removed, as we want to address them moving forward. We also created a tiering criteria to prioritize projects, but capacity building efforts are not yet evaluated using this tiering criteria. The evaluation criteria were aligned with the framework’s guiding principles. The outcome is that we have a project database and screening criteria developed that are functional. We have also identified challenges and limitations experienced in this process and are looking to address those moving forward. Recommendations for points to consider were provided by the Project Evaluation Subcommittee, and I will turn the floor over to Dr. Carl Hershner to review these considerations.</p> <p>Dr. Hershner: I think Rear Admiral Phillips has done a reasonable job of summarizing the issues we have confronted. We have not had a final meeting as a Subcommittee, but in our discussions over the past couple of months, there was consistent concern regarding the quantitative evaluation of projects. The outcome of the application of this protocol in the first iteration has some issues that can be successfully addressed in future iterations. But we are currently nearing the finish line and need to identify projects that will benefit the Commonwealth. We need to pull out those projects that seem to align with the guiding principles of the framework. The recommendation would be to do this by using subject matter experts with local knowledge. We are not trying to set aside the work that has already been done and just choose our favorites. But can we add to what has been done and add expert advice to identify a shortlist of projects in the next 2 weeks that represent what can be accomplished to build coastal resiliency in Virginia that this initial funding might be able to address? We will present our other recommendations later in the meeting. I will open the floor for the TAC members to ask questions.</p> <p>Discussion Point- Dr. Luckenbach: I appreciate what you are saying regarding identifying initial projects, but is the long-term solution to this to focus on finalizing the ongoing process as more projects come in? Will there be staff somewhere to execute this moving forward, maybe within DCR?</p>

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Dr. Hershner: What we identified is that a comprehensive view of the risk distribution across the coastal plan needs to be established in order to best promote comprehensive resiliency efforts. It will provide context for projects going forward and help the State identify the types of projects that will be most critical. - Rear Admiral Phillips: We still have multiple tasks to attend to. What do we want to make our priorities as a Commonwealth? We need to figure out how we want to prioritize things, which the impact assessment can also help us do. We would like to show a shortlist of examples of the projects that are of particular interest to the Commonwealth. What should the process be for the future, and what do we not yet have? How do we move forward with this prioritization process? How do we want to prioritize funding? ICAR has agreed to host this meeting to pull together subject matter experts for identifying the shortlist of projects next week, so we are very grateful to them. This will likely need to be a public meeting, depending on how many TAC members will be there. If you are interested in being a part of this, please let me know. - Dr. Hershner: I suggest that, in order to represent the collective input of the TAC, we have a consensus of the Subcommittee chairs. - Rear Admiral Phillips: The intent is to identify who might be a part of this effort by tomorrow and hold an initial meeting mid-week next week so we can go over projects and get an idea of the additional information that we have received from localities. Then, we can look to make final decisions. - Dr. Hershner: Is this a self-nomination process? - Rear Admiral Phillips: Yes. It will be helpful to have experts from the Subcommittees, so please let me know if you would like to participate by noon tomorrow. - Secretary Jennings: Rear Admiral Phillips can then look across those that have volunteered and ensure that we have all areas of expertise represented. From there, we can reach out to those who can add needed expertise. - Dr. Hershner: Did I understand correctly that capacity building projects are not included in the prioritization framework at this point? - Rear Admiral Phillips: They are being considered separately outside of the prioritization framework, as many communities need capacity building before they can even submit projects. - Rachel Peabody: I would request that you get regulators in the room. This group needs to be included to address some of the issues you mentioned. - Rear Admiral Phillips: Yes, we are definitely in agreement on that. - Ms. Stiff: Can we invite local government staff? - Rear Admiral Phillips: Yes, we will need on-the-ground expertise. We will need to identify who is best to reach out to, so if you have someone in mind to be included in these conversations, please provide me with their information. <p>Secretary Jennings: This group has decided to commit to a quick turnaround time for reviewing and shortlisting projects. We are asking a lot of the subject matter experts to meet twice in such a short period of time. Please let Rear Admiral Phillips know if you are interested in participating. She will ensure that both knowledge from the TAC and local knowledge are represented in these meetings.</p>

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Rear Admiral Phillips: We had intended to showcase or write up projects that meet the evaluation criteria and are exemplary projects that demonstrate “this is a great way to do X.” In this context we should consider are the most urgent needs or priorities across the coastal PDCs? <p>Discussion Point- Dr. Mark Luckenbach: When you get to the end of this process, is there an assumption that, if your project makes it onto this list that is being pulled together at the last minute, you are at the top of the list for the Community Flood Preparedness Fund?</p> <ul style="list-style-type: none"> - Rear Admiral Phillips: No, the two are not necessarily directly interplaying. In the future, we would like to tie these two things together and give credit to those projects that are addressing the needs or priorities of the Commonwealth. Being a project that has been identified by this process as of exceptional value could make a project more eligible for other grant programs; however, I am careful not to over-promise anything. - Clyde Cristman: The Community Flood Preparedness Fund is statewide, but the CRMP is specific to the coast. After the Master Plan has been published, a project that is consistent with the Master Plan will be recognized as such. - Lewis Lawrence: It would be disingenuous to not identify that there are rural jurisdictions that do not have the capacity to insert projects into the database. I hear that over and over from the jurisdictions. If you tie the two together, you are leaving jurisdictions with less capacity disadvantaged. <p>Discussion Point- Kristin Owen: I want to quickly return to the topic of the group for the meeting next week. Do you want us to provide recommendations for subject matter experts that should be included by tomorrow?</p> <ul style="list-style-type: none"> - Rear Admiral Phillips: Yes.
5.	Subcommittee Recommendations for Master Plan, Additional Discussion, and Questions	<p>Project Identification Subcommittee</p> <p>Lewis Lawrence: Since Dewberry came up with a mature methodology, it supplanted the need for our Subcommittee recently. We have been taking a look at the prioritization process and project database to review whether the projects coming in are representative of the wholeness of the efforts that need to be pursued by the CRMP. Rear Admiral Phillips and I have discussed the complexities of how we approach the fact that rural districts are largely privately owned, but water goes where it wants to go. What is important to the Commonwealth may be different than what is important to localities and local residents. This is just the beginning of this process, so we have a lot work to do moving forward. I am sure the next time a big disaster comes to coastal Virginia, a new perspective on the urgency of these efforts will come. If we are to do more in this space, we will need to do a better job of educating our coastal communities. As you travelled further from urbanized areas, there was less and less engagement in the outreach efforts that have already been executed. Having an open relationship and communication with local staff and representatives will be important. The body of work that Dewberry has created is very impressive, but where do we go from here?</p>

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Dr. McGlathery: Are there goals about having an equitable distribution of projects submitted across the Commonwealth? You mentioned that some localities do not have the capacity to submit projects. - Rear Admiral Phillips: We need to deal with what we have received first. Part of this process will be operationalizing that education piece, but there are current efforts in Northern Neck and Crater PDCs, and MPPDC to expand knowledge and identify ways to build capacity. - Ms. Owen: You just mentioned that some of the PDCs are working to expand capacity and educate, but I do not think it is fair to put this responsibility on the PDCs to convince the localities that this is important. We need to be having these hard conversations with elected officials- they need to hear it from scientific experts directly, so they fully understand the issue. That needs to be statewide in the future. It needs to be in all 8 coastal PDCs, and do not forget that small towns that have their own elected officials often have no paid staff. It is still an issue, not just in rural areas, but also in urbanized areas. <p>Project Evaluation Subcommittee</p> <p>Dr. Carl Hershner: I will share just a few of the recommendations our Subcommittee has raised throughout this process. The first is that project scoring is largely dependent on applicant characterizations of project type, extent, and benefits. Without objective and critical evaluation this can lead to significant over-valuation of projects. Also, the scoring of projects tends to place a premium on those that address current flooding issues. This is not necessarily a strategic use of funds in building long-term resilience. There is no basis for evaluating project benefits for precipitation driven flooding in the absence of spatially explicit risk exposure information. Additionally, natural and nature-based features should be considered critical infrastructure and projects that preserve ecosystem service capacity through coming decades should be ranked highly, regardless of proximity to developed landscapes. As currently implemented, the project evaluation protocol is incapable of leading to a strategic increase in coastal flood resilience that reflects the CRMP guiding principles. The population of projects under evaluation is not the product of a comprehensive needs assessment but rather a compilation of independently identified local interests. Even if the protocol was capable of reliable identification of the most impactful proposed projects, it cannot ensure critical needs across the entire coastal zone will be addressed. Absent some well-considered guidance regarding the type and location of projects which will advance the CRMP goals, current evaluation practices will simply result in creative project characterizations to gain funding for a hodgepodge of public works projects. A lot of our comments have already been incorporated in this discussion.</p> <ul style="list-style-type: none"> - Secretary Jennings: Your Subcommittee’s suggestion is that we include natural infrastructure as critical infrastructure to protect from coastal hazards? - Dr. Hershner: Yes, the importance of natural features for the economy of the Commonwealth, water quality, etc. is critical to be maintained and is threatened by climate change. Natural infrastructure is at-risk and requires proactive action. - Secretary Jennings: You did not mention natural infrastructure as being helpful in protecting against coastal hazards, but is that also the case?

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Dr. Hershner: Yes, they provide necessary ecosystem services. - Ms. Peabody: The resilience of our economic sectors that rely on natural resources is also important in this discussion. <p>Finance Subcommittee - Elizabeth Andrews absent, Laura McKay provided brief</p> <p>Laura McKay: Elizabeth Andrews presented these final recommendations from our Subcommittee at the last TAC meeting, but I will provide a quick review and offer time for you all to ask questions. Our first recommendation is to Establish a Mechanism for Ensuring the State’s Overarching Resilience Funding Priorities Are Taken into Account (Not Just Local). This would incorporate a more regional perspective and include a financial analysis of adapting vs. abandoning public infrastructure. The second recommendation is to Provide Funding for State Climate Adaptation Planning Staff, and the third overall recommendation is to Establish a Resiliency Revolving Loan Fund.</p> <p>Community Outreach Subcommittee – Ashley Montgomery was absent at this point in the meeting, so David Paylor provided brief.</p> <p>David Paylor: We have formal recommendations developed for incorporation, but one the major points in our recent discussion has been to explore how we can enhance the engagement of communities, especially those that are underserved. We want to have customized outreach approaches, depending on the communities themselves. It is important to look at ways to make information succinct and simplified so members of the community can understand quickly and easily what their risks and options are. It would be helpful to have discussions about how the Subcommittee can be more integrated into the outreach process. Our biggest concerns are the identification of underserved communities and the communication of information to communities.</p> <p>Studies, Research, and Best Practices Subcommittee</p> <p>Dr. Robert Weiss: I will highlight just a few of our recommendations. We want to establish a transition from the temporary TAC process for providing scientific, technical, and policy advice for Virginia’s resilience efforts. This effort should establish a process for regularly re-evaluating climate change science and impacts and including these into state policy. Another recommendation is to assess how the recommendations of the Plan should be incorporated into the impact on agency mission and services. Also, the CRMP should include a recommendation to develop a process for determining when relocation is preferable to maintaining the status quo. The CRMP should also include acknowledgement that the community engagement on the Plan was limited due to the expedited timeline.</p> <ul style="list-style-type: none"> - Rear Admiral Phillips: Will you discuss the relocation document you are developing?

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Dr. Weiss: Our Subcommittee had a meeting this morning to discuss the relocation document we are developing, though we did not reach a quorum. We have a draft that includes three additional chapters in addition to research conducted earlier this summer. We are currently getting feedback from the Subcommittee members. The document includes a section on the Virginia context on relocation, as well as a number of case studies on relocation. Hopefully we will very soon have a document with an Introduction and Executive Summary that highlights important points. We are moving away from the term handbook, after discussion among the Subcommittee, because the document does not provide a flowchart description of what to do. It is more of a framework or primer that provides background information and resources. <p>Federal Installation Partnership Subcommittee</p> <p>Capt. Thomas Crabbs: We made a list of observations that have been discussed by the Subcommittee over the past months, which are reflecting in this presentation. One important goal identified by the Subcommittee is to develop formalized and sustained local and regional resilience networks. We also found an extremely helpful document called Advancing Resilience for Defense Communities completed by the Association of Defense Communities. It provides a roadmap for how to achieve funding sources for resiliency projects. We recommend that it be referenced in the Master Plan for those communities that need guidance in achieving funding sources. It is not exhaustive, especially on the USACE front, but all of our localities should be tuned into this document. Recommend that we implement recommendations from existing compatible use studies, and we suggest that localities conduct and regularly update compatible use studies. Another of our recommendations is to initiate and sustain a state campaign to support localities through education and advocacy. We have been working to develop a roadmap that defense communities can use to navigate funding sources. Also, we recommend that the CRMP support federal authorities that will provide local and state advantages. Lastly, we should investigate adapting existing regional and statewide planning and funding models to support coastal resilience solutions, such as Smart Scale.</p> <ul style="list-style-type: none"> - Dr. McGlathery: It is important to highlight potential for federal funding to fund community-engaged coastal resilience efforts. This helps put Virginia on the map as a leader in coastal resiliency. We want to be a state that leads the way and acts as a model. - Mr. Crabbs: We agree with you 100%. We had to constantly remind ourselves that there are other types of federal installations that can connect us with different financial resources. - Laura McKay: You just mentioned that you had to constrain yourselves. It is important to consider wildlife refuges, which opens up funding in federal agencies. - Mr. Crabbs: We agree. Being opportunistic with those partnerships is really important. Determining the installations and their characteristics was very involved. We also thought about other installations, such as airports, that do not fit neatly in one space.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Mr. Lawrence: I agree that Smart Scale is a great way to help identify where resources should be distributed to communities. Middle Peninsula has often been left out- how do you ensure that rural and underserved communities are receiving the funds necessary and are not being left behind? - Mr. Crabbs: I agree. We are concerned in our Subcommittee regarding the threat of underrepresenting communities, and we have been trying to identify and support the connection to federal installations. It is a good avenue to find avenues for underrepresented areas to find representation. - Bob Crum: I want to make a plug about the REPI program. There is a concern that this is facility-driven because implementing the REPI program seems to be very different from installation to installation. - Mr. Crabbs: It goes back to awareness and the education of localities regarding opportunities. If you know about the REPI program and are able to get REPI, then you can ride that for a while because it provides continual investment. There is no place with greater concentration of federal installations than this study area. With more awareness, we can do a lot more in that field. - Chris Swanson: Are you recommending creating a regional framework that is similar to Smart Scale or a locally driven framework? - Mr. Crabbs: Not exactly. I threw Smart Scale up there as a recommended framework, not necessarily as a solution. It is worth looking at as an example. - Mr. Crum: Excellent presentation. I want to use this opportunity to circle back to capacity. Dewberry, maybe this is something you can help demonstrate in the plan. I am responsible for 2 organizations. If you follow the money on the transportation side, there is a funding source that allows us to set up a capacity for transportation planning staff. There is no similar program, urban or rural, with dedicated funding to address coastal resiliency. Some areas do not have the resources. We need a similar type of funding source from the federal or state level to address coastal resiliency, like transportation does, which allows for staff capacity. - Dr. Whitehead: It occurred to me that the role that some of these federal entities have can be tied to the capacity building issue. NOAA, USGS, USDA, EPA, etc. can provide capacity building options. There are real opportunities to use federal funds to assist with the capacity building function to get communities to the point where they can apply for funds. There are other states/locations grappling with the same challenges in how to use Smart Scale or other prioritization schemes to balance urban/rural challenges, as well as how funds should be used differently. Big national-scale entities can help, but there are other communities that may benefit from disaster-related funds, just as an example. - Mr. Crabbs: Another of our recommendations was to coordinate with other states, which should flesh out our own roadmaps so localities can leverage what is available. Also, we identified designating state funding to help localities compete for federal funding opportunities as being an important investment. - Rear Admiral Phillips: The financial database is being built as part of the Master Plan and is important for helping align funding opportunities with projects. We believe it will add a great deal in this capacity. Adding projects to the capacity building database will also be important.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>Aligning Economic Development Subcommittee</p> <p>Sara Dunnigan: First, I want to thank everyone on the Committee. You probably have noticed that there is not a list of formal recommendations from our Subcommittee, but I would like to introduce some of our work. Our Subcommittee's task was to recommend a process for how economic development in Virginia could be aligned with the goals of the Master Plan. We spent a while determining what economic development meant: public endeavors that work to attract new capital investment in communities. It is important that our coastal communities remain attractive to new businesses. We had an opportunity to hear from principals and developed a baseline survey that was disseminated to local, state, regional, and federal economic developers. The survey results were informative. A few opportunities where the alignment was determined to be weak included that the stakeholders needed a better understanding of scientific topics to better understand how coastal resiliency efforts would impact economic development. Also, there is a need to educate elected officials that are in the business of economic development. We need to come up with a way to discuss the economic disadvantages of doing nothing and the economic benefits of addressing coastal resiliency. Many of the economic developers did not feel their goals were aligned with the equity framework supported by the CRMP. Establishing financing strategies that execute the CRMP is important; we need to prioritize investments in this area and make sure there are specific tools to support economic development in coastal communities. Barriers to alignment included lack of information and balancing preservation while allowing economic activity, particularly for working waterfronts.</p>
6.	Additional Overarching TAC / Subcommittee Recommendations – Considerations for the Future	<p>Rear Admiral Phillips opened the floor to Dr. Hershner to provide broad, long-term recommendations.</p> <p>Dr. Hershner: These recommendations are a follow-up to our last discussion at the TAC meeting for how things should evolve moving forward. There was a desire to create a short list of concise recommendations that will act to advise the next administration about what is critical to continue this effort. I offer up these 5 recommendations, most of which you have hears some way or another today:</p> <ol style="list-style-type: none"> 1. The responsibility and authority to implement and continually update the Coastal Resilience Master Plan should be assigned to an entity within state government that will persist across successive administrations and is provided with adequate staff and funding. 2. That entity should be advised by a formally appointed Technical Advisory Committee of modest size and composed entirely of subject matter experts. 3. Resources for implementation, maintenance, and continued development of the CRMP should be authorized from multiple sources and should include options for contracts, grants, loans, and other alternative funding mechanisms.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<p>4. The CRMP should be immediately improved by developing a comprehensive, spatially-explicit risk assessment of critical human and natural infrastructure. Understanding the nature and distribution of risk across the entire coastal zone is essential for effective implementation of the CRMP guiding principles in project prioritization.</p> <p style="padding-left: 40px;">a. Critical human infrastructure should include, at a minimum: transportation, power distribution, communications, water supply, waste disposal, food distribution, emergency services, medical and long-term care facilities, and shelters.</p> <p style="padding-left: 40px;">b. Critical natural infrastructure should include, at a minimum: beaches, dunes, tidal wetlands, coastal forests, and vegetated flood plains. The assessment should address both the current and possible future locations of these features.</p> <p style="padding-left: 40px;">c. Risk assessment should explicitly consider both coastal storm surge and precipitation-driven flooding for both current and future conditions.</p> <p>5. A spatially-explicit inventory of disadvantaged communities should be developed to inform project prioritization and effective implementation of the CRMP guiding principles.</p> <p style="padding-left: 40px;">a. Identification of these communities should be at the finest possible resolution and should be based initially on characteristics of income, age, and mobility.</p> <p>Dr. Hershner opened the floor for comments and questions from the TAC members.</p> <p>Discussion Point- Mr. Crum: I fully support these recommendations. I had this conversation with my Chief Administrative Officers. How does this transcend administration to keep moving forward? I want to throw something out there: we need to get in front of the new Chief of Staff immediately when the administration comes in. I wonder if there could be a small group (2-3 members) that could articulate what Carl just said to the incoming Chief of Staff. Getting in with that leadership early, explaining the criticality of this issue and what has been done over the past year is super important.</p> <ul style="list-style-type: none"> - Secretary Jennings: Specific actions by particular TAC members is outside of the scope of the Executive Order. - Mr. Crum: Then maybe some of us could do it from our professional perspectives, representing our organizations. - Secretary Jennings: Both campaigns will have their staff set beforehand, so it would be important to do that early. We need to show that the TAC members are coalescing around these recommendations - Ms. Stiff: I would go further to say that we support everything Carl outlined, and the conservation community is already looking to make these efforts.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		<ul style="list-style-type: none"> - Admiral Craig Quigley: Do we know how the product of this group will be rolled out? - Rear Admiral Phillips: Yes, the Governor will announce this in early December. - Director Paylor – We need to make the message here very clear and succinct. - Dr. Luckenbach: I think David Paylor’s point about making the message clear and succinct is important. I support everything that Dr. Hershner has outlined. - Leigh Mitchell: It would be worth adding something about better understanding of sovereign nations’ resources. You mention a lot about PDCs, localities, and underserved communities, but not sovereign nations. It would be appropriate to include them in this space. - Dr. Hershner: If we will have another TAC meeting, I would be happy to receive any comments or suggestions to incorporate them to ensure the recommendations are succinct and high-level. I would promise to turn that around before the next meeting so that they can be voted on in the next meeting. - Rear Admiral Phillips: If it is a stand-alone document, that is appropriate. If it is to be included in the Master Plan document, then we would need it to be provided sooner than that. - Secretary Jennings: The Master Plan needs to identify the next steps. There is an opportunity to collectively advocate for how this will live on. There is an ability to add that into the Master Plan separately. This body saying to the next Governor, “We were there throughout the process and are standing behind it,” that is a powerful statement. You are an impressive group of individuals, and I hope the Governor would be amenable to that. As individuals taking it upon yourselves to communicate that to the transition team is admirable and very helpful. And your offer, Dr. Hershner, would be very helpful. - Dr. Whitehead: I do want to recognize that there are a number of synergies between what Dr. Hershner has said and what a number of the Subcommittees have identified as well. There needs to be a designated point of contact who can communicate the need for staff capacity. I am coming from a position of creating an office from nothing to do many of the things we are considering here. Plugging the information deficit is not the sole thing that will move others to action. There needs to be funding, a communication structure, etc. in place. It is about recognizing that resiliency capacity currently needs to be distributed across a number of agencies in the Commonwealth. Need to come up with pathways to action- it is not just about the publication of this plan. We need to lay out exactly what needs to happen and the roles of critical partners. These are key pieces that need to be communicated not only to the new administration, but also the General Assembly to expand funding for coastal resiliency efforts and capacity building. - Director Paylor: I would like to see these recommendations fleshed out more to be able to comment on them. - Rear Admiral Phillips: Dr. Hershner will take feedback and incorporate it into the recommendations for a stand-alone document to be discussed at the next TAC meeting. We need to align recommendations from all of the

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**

Agenda/Minutes		
#	Agenda Item	Minutes
		Subcommittees. As of this meeting, we need to consider how to best represent these recommendations in the Master Plan document.
7.	Program Updates- Secretary Jennings	<p><i>VCFPF Grant Manual Release</i> DCR has announced a new round of the Community Flood Preparedness Fund.</p> <p><i>Intent for Document and Plan Completion and Release</i> We have already gone over the schedule for the Master Plan document and are working for a final document to be ready by the end of October for release in early December.</p> <p><i>Targeted Next Meeting Date – TBD</i> We are considering one more meeting of this body while under Governor Northam’s term, so you will be given information on that in the future. Thank you for the incredible time commitment you have given to this effort. There is a tremendous amount of work to do, but we are very grateful for all of your work.</p>
8.	Public Comments	Secretary Jennings opened the floor to public comments. No one signed up for public comment, and no comments were posed during this time.
9.	Motion to Adjourn	Secretary Jennings adjourned the meeting at 4:58 pm.

Action Items			
#	Action Item	Owner (Organization)	Due Date
1.	Provide input and feedback on overall TAC recommendations to Dr. Carl Hershner.	TAC members	November 3rd
2.	Incorporate members’ feedback into TAC recommendations and produce final recommendations for a vote.	Dr. Carl Hershner	November TAC Meeting
3.	Determine date of next TAC meeting	Committee Staff	Proposed dates to TAC by 22 October

If you have any questions, please contact Emily Sokol, Vision Planning and Consulting, at esokol@vision-pc.net.

**Virginia Coastal Resilience Master Plan
Technical Advisory Committee**